

# Modification Form for Permit BIO-UWO-0109

Permit Holder: David Edgell

## Approved Personnel

(Please stroke out any personnel to be removed)

Nancy Friedrich  
Danielle Tegart  
Wesley Berube-Janzen  
Rachel Ma  
Keith Horwood  
Ben Kleinstiver

## Additional Personnel

(Please list additional personnel here)

	Please stroke out any approved Biological Agent(s) to be removed	Write additional Biological Agent(s) for approval below. Give the full name
<b>Approved Microorganisms</b>	<del>Aeromonas hydrophila</del> , E. coli BL21, E. coli dH5 alpha. <i>no longer used.</i>	
<b>Approved Primary and Established Cells</b>		
<b>Approved Use of Human Source Material</b>		
<b>Approved Genetic Modifications (Plasmids/Vectors)</b>	[plasmids]: ColE1-replicon (pUC) pACYC-based vectors	PAH103 (pCS466)
<b>Approved Use of Animals</b>		
<b>Approved Biological Toxin(s)</b>		

\* PLEASE ATTACH A MATERIAL SAFETY DATA SHEET OR EQUIVALENT FOR NEW BIOLOGICAL AGENTS.

\*\* PLEASE ATTACH A BRIEF DESCRIPTION OF THE WORK THAT EXPLAINS THE BIOLOGICAL AGENTS USED AND HOW THEY WILL BE STORED, USED AND DISPOSED OF..

**As the Principal Investigator, I have ensured that this project will follow the Western Biosafety Guidelines and Procedures Manual for Containment Level 1 2 Laboratories (and the Level 3 Facilities Manual for Level 3 projects). I will ensure that UWO faculty, staff and students working in my laboratory have an up-to-date Hazard Communication Form, found at <http://www.shs.uwo.ca/workplace/newposition.htm>**

Signature of Permit Holder: \_\_\_\_\_

*Davey* (Nov 10, 2011)

Current Classification: 2

Containment Level for Added Biohazards: \_\_\_\_\_

Date of Last Biohazardous Agents Registry Form: \_\_\_\_\_

Aug 13, 2010

Date of Last Modification (if applicable): \_\_\_\_\_

BioSafety Officer(s): \_\_\_\_\_

Chair, Biohazards Subcommittee: \_\_\_\_\_

Date: \_\_\_\_\_

We plan to subclone the fragment present on the plasmid into expression vectors we commonly use in our lab (the pACYC derivatives). We plan to overexpress and purify the polypeptide encoded by the subcloned fragment for DNA binding assays.

LOCUS pC5466-PthXo1 6939 bp DNA circular 18-Nov-2010

SOURCE

ORGANISM

COMMENT This file was created by DNADynamo

COMMENT www.bluetractorsoftware.co.uk

FEATURES Location/Qualifiers

misc\_feature 159..164  
/label="Shine-Dalgarno"  
misc\_feature 1835..3434  
/label="REPEATS"  
/note="REPEATS"  
misc\_feature 3834..3845  
/label="NLS1"  
/note="NLS1"  
misc\_feature 3972..3983  
/label="NLS2"  
/note="NLS2"  
misc\_feature 3438..3560  
/label="Possible L Zip"  
/note="Possible L Zipper"  
misc\_feature 4083..4094  
/label="NLS3"  
/note="NLS3"  
misc\_feature 168..170  
/label="Kozak"  
/note="Kozak"  
misc\_feature 4173..4253  
/label="AA Domain"  
/note="AA Domain"  
misc\_feature 152..999  
/label="talic -N"  
/note="talic -5"  
misc\_feature 4269..4273  
/label="protein\_bind TOPO\Cloning\site"  
/note="TOPO\Cloning\site"  
misc\_feature 142..146  
/label="protein\_bind TOPO\Cloning\site"  
/note="TOPO\Cloning\site"  
misc\_feature 4516..4649  
/label="promoter Spn\promoter"  
/note="Spn\promoter"  
misc\_feature 6671..6698  
/label="terminator rrnB\T2\transcription\terminat"  
/note="rrnB\T2\transcription\terminat"  
misc\_feature 4282..4381  
/label="misc\_recomb attL2"  
/note="attL2"  
misc\_feature 33..132  
/label="misc\_recomb attL1"  
/note="attL1"  
misc\_feature 5727..6400  
/label="rep\_origin ori"  
/note="ori"  
misc\_feature 4650..5660  
/label="CDS SpnR"  
/note="SpnR"  
misc\_feature 4422..4438  
/label="primer rev primers"  
/note="rev primer"  
misc\_feature 1..16  
/label="primer fwd primers"  
/note="fwd primer"  
misc\_feature 6830..6873  
/label="terminator T1-T2"  
/note="T1-T2"  
misc\_feature 171..173  
/label="misc\_feature ATG"  
/note="ATG"  
misc\_feature 1000..3892  
/label="Insert PthXo1 Repeat Region"  
/note="pthXo1 SpH Frag 23.5 repeats"  
misc\_feature 3892..4268  
/label="Insert My Favourite Gene"  
/note="talic-3"

ORIGIN

1 gtaaacgac ggccagtcct aagctcggc cccaantaat gattttatt tgactgatg  
61 tgacctgttc gttgcaaca attgatgagc aatgctttt tataatgcca acctgtaca  
121 aanaagcagg ctccgaattc gcccttttc atgtaatat gaggtgacc atggatccca  
181 ttgctcgcg caggccaagt cctgcccgc agctttctgc cgaaccacca ccggtatgg  
241 ttacgccgac tgcagatgat gggatgtctg cgcctgctgg cagcccttg gatgctgc  
301 ccgctcggc gacgatgac cggaccggc tgcactctc cctgcccct tccctgctg  
361 tctcggcgg cagcttcagc gattctgctc gtccttcca tccgtcctt cttgatcac  
421 cgctcttga ttgatgctt gccctcggca cgcgcatac agcgcctgcc ccagcagat  
481 gggatgagg gcaatggct ctgctgca ccatgacc gccaccacc gtgctgtctg  
541 ctgtcactg cgcggggcg ccgcgcgcca agcggcccc gcagcgcgt gctgcaaac  
601 cctcagcgc ttcgcccgc gcgcaggtg atctacgacc gctcggctac agtcagcgc  
661 agcaagagaa gatcaaacg aaggtgctt gcacgtggc gcagaccac gaggactgg  
721 tggccatgg gtttaacac gcgcacatg ttgctcgcg ccaacaccg gcagcgttg  
781 ggaccgtgc tctcagtat cagcacaata tcacggcgtt gccagggcg acacagag  
841 acatcgttg cgtcggcaa cagtggtccg gcgcagcgc cctggagacc ttgctcagg  
901 atgagggga gttgagagt ccgccttac agttgacac aggccactt gtgagattg  
961 caaacatgg cggatgacc gcaatggag cagtgcagc atcagcact gcaatagcg  
1021 gtgccccct gaacctgacc cgggacagg tggggccat cggcagcact aacgtggca  
1081 agcagggcct ggaagcggg cagcggctgt tgcgggtct gtgccagccc catggcctg  
1141 cccagggcga ggttggtgccc atcgccagcc acgatggcgg caagcagcca ctggagcga  
1201 tgcagcggct gttgcccgtt ctgtgccagg ccatggcct gcccccaggc caggtggtg  
1261 ccatcggcc cantatggc ggcagcagg cgtggagac ggtgacagg cttgtgccc  
1321 tgcctcgca ggcctatgg ctgaccagg accaggtgt ggcactgccc agccatggc  
1381 gcggcagca ggcctggag acggtgcagc ggtgtgccc ggtgctctc caggccatg  
1441 gcctgacccc ggaaccggg gtggccatc ccagccaca tggcggcagg caggcctgg

1501 agacggatga gcggtgttg ccggtgtgt gccagccca tggcctgacc cggaccagg  
1561 tgggtgcat cggcagcaat ggcggcgca agcaggcgtt ggaagcgtg cagcggcgt  
1621 tggcggatgct gtcggcaggc catggtctga ccccgaccga ggtggtgctc atcgcaagca  
1681 atggcgccaa gcaggcgtg gggcggctg agcggctgtt ccgggtgctg tgcaggcc  
1741 atggcctgac cccggaccag ttggtggcca tccggaccga cgtggtgctg aagcaggcc  
1801 tggagncggt gcaggcgtg ttgctggctg ttgctcagac ccatggtctg acccggcgc  
1861 aggtgtggtg cctcgcagc cagatggtg gcaggcagg cgtggagca atcagcagc  
1921 tgttgcagg gctgtgcaag gccatggcc tgaccgccga ccagggtgtg gccatgccca  
1981 gcaatattg cggcaagcag gcctcagcga cgggtcagcg gctgtgtcgg gtgctgtgccc  
2041 aagcccatgg cctgaccctg gaccaggtgg tggccatcgc cagcaoutggc ggcggaagc  
2101 aggcgctgga gacgggtcag cggctgttgc cgggtcgtg ccaggcccat ggcctgaacc  
2161 cggaccagg ggtggccatc gccagcaatg cggcgccaa gcaggcctg gggcgggtg  
2221 agcggctgtt gccgggtgctg tggcaggccc atggtctgac ccagggtcag gttgtgtcca  
2281 tgcggcaga tatttggggc aagcaggcgc ttggaagcgt gcaggcctg ttgctgtgccc  
2341 tgtgcccagg ccatggcctg acccggcgc aggtggtggc cctcgcagc cagatgtgg  
2401 gcaagcagg gctggagcg gtgcagcggc tttgtcgggt gctgtgccc gcccattggcc  
2461 tgaccgccga ccaagtggtg gccatgccca gcaatggcgg cggcaagcag ggcgtggga  
2521 cggctcagcg gctgtgtcga gtgctgtgccc aggcctcagc cctgaccag gggcaggtg  
2581 tggcctcgc cagcaatac ggcggcagg aggcctgga gacgggtcag cggctgtgccc  
2641 cggctcgtg caggcccat ggcctgacc cggaccagg ggtgaccatc gccagcaatg  
2701 ggcggcga gcaagcgtg gggcagggtg agcggctgtt agcgggtcgt tggcaggccc  
2761 atggtctgac cccggcagc gttgtggcca tccgcagca tattggcggc aagcaggcgc  
2821 tggagcagg gcaagcgtt ttgcccgtg ttgctcagga ccatggcctg accctggcgc  
2881 aggtgtggtg cctcgcagc aatattggcg gcaagcaggc gctggagcag gtcagcggc  
2941 tgttgcgggt gctgtgccc gcaatggccc tgaccagga ccagggtgtg gccatgccca  
3001 gcaatattg cggcaagcag gcctgggaga cgggtcagcg gctgtgtccc gtgctgtgccc  
3061 aggcattgg cctgaccggc gaccaggtg ttgcccctgc cagcaatatt ggcctgaagc  
3121 aggcctgga gacgggtcag cggctgtgccc cggctcgtg ccaggcat ggcctgaagc  
3181 tggaccagg ggtggccatc gccagcaatg cggcagcga ggcctggag ccgctgtgccc  
3241 gctgtgtgc gctgtgtgccc caggaccatg gactgacccc ggcagcagc gctgcccctg  
3301 cagcaatag ttgcccagc caggcctgga agcaggtgca ggcctgtgccc ccgctgtgccc  
3361 gcaagcaga tggcctgacc ccaagcagg ttggtgcat cgcagcaat ggcggcaagc  
3421 aggcctgga gacatgttt gccagttat cctgcccga tccggcgtt ggcgctgga  
3481 ccaagcaga cctcgtgccc ttggcctgccc tccggcagc tccctcagc gctgctgga  
3541 aagggggtt gccgacgcg ccggaattga tccagaggtt caatcgcctg atggcgaagc  
3601 gcaagcaga tccgctgccc gactcagcgc aagttgctg cgtgctgag ttttccctg  
3661 gcaactcca cccagcagc gcaattgag aggcctgac gcaattgagg atgagcagga  
3721 agcgggtggt aagcctctt ccaagcagc gctcagca actcgaagc cgcgtggga  
3781 gctcctccc agcctcagc cgttgggacc gctcctcca ggcctcagc atgaaaggg  
3841 caaacctc cctcctcga gctcaaac cggatcagc gctctgcat gcaatcggc  
3901 attcctgga gctgacatc gactgcccga gcccaatgca cggagagat cagacggc  
3961 cagcagcgg taaacggctc cgtcggatc gctgctcag cggcccctc gcaagcagc  
4021 tctcaggtt ggcgctccc gaacagcggc atgcctgca ttgcccctc agctggagg  
4081 taanaagc cgtcagcag atctggggc gctcccagc tctggtgac cccatggctg  
4141 ccaagcagg agcgtcagc acgtggtg ttgaaagca tggcaagc ttcgagagg  
4201 cagcagatg tttcccagc tcaagcagc aggaactc atggtgagc gactgtgctg  
4261 ctcaagca gggcgaatc gaccagcct tctgtgaca agttggcatt ataaagata  
4321 atgctcacc aatgtgtg nacgaacag tcaatcag ctanaataa atcattatt  
4381 gcaatcagc tgatcccc tatagtgag cgtatcat ggtcatagc atgtctggc  
4441 agcctggcc cgtgtcaca aatcctgat gttacattg acangataa aatatacat  
4501 cagcctcct ctagaccagc caggacagca atgctcagc ttgctgctg cccaaggtg  
4561 cgggtgagc cacaccgtg aacggatg aggcagcag ccagtgga caagcctgtt  
4621 cggctgtaa gctgatagc aagtagcga ttgctcagc cnaactgctc agnacttga  
4681 cgaagcagc cgggtgtaac ggcagcagc cggtttcat ggcctgtat gactgtttt  
4741 ttgggtgca gctatgctt cggcctcga agcagcagg cgttaccgc ttgggtgctg  
4801 gttgtggtt atgagcagc aagcagttt cgcagcagg cagtcacct aanaaggt  
4861 taacatcat gggagagcg gtagcctgc aagtagcag tcaatcaga gggtaggtg  
4921 gctatcga ccgcatcct gaacagcgt ttgctgccc acattgtac ggcctcagc  
4981 tggatgccc cctgagcga caagtgata ttgattgct ggttaccgt accglaagc  
5041 ttgatgaac aagcggcga gcttggatc agcactttt ggaacttgc gctcccctg  
5101 gggagagca gattctcgc gctgtagag tcaactgt ttgcaagc gacatcatt  
5161 cgtgctgta tccagctag cgcgaactg natgtgaga atggcagc aatgacatc  
5221 ttgaggtat cttcagcca gccagatc acattgatc ggtatctg ctgcaaaag  
5281 caagagaca tagcgtgccc ttgtaggct cagcggcga ggaactcct gatccggtc  
5341 ctgaacagga tctattgag gcgctaatt naacctaac gctalggaac tgcggcagc  
5401 actgggctg cgtagcagc antgtatgc ttacgttgc cgcatttgg tacagcagc  
5461 taacggcga natcgcgcg aagatgtc ctgcccagc ggcagtgag cgcctgccc  
5521 cccagatca gccctcaca cttgaagca gaccagccta tcttggaca gaagagatc  
5581 gcttggcctc gcgcagat cagttggaag antttgcca ctacgtgaa ggcagatca  
5641 caaggtggt cggcaatana cctcagacc accaatgac aanaactcct aagctggtt  
5701 acgctgctt ccactgagc tcaagcccg tgaanaagc caagagatc tcttgatc  
5761 ctttttctt gcgctaatc tgcctgtg aanaaaaaa accaccgca ccagggtg  
5821 ttgtttgccc gnatcaagc ctaccactc tttttcga ggaactggc ttacagagc  
5881 cgcagatcc aatactgct cttcaggtt agcgtggtt aggcacac tcaagagct  
5941 cgtagcacc gccatatac ctcgctgct taactcgtt accagtgct gctgcccagc  
6001 gcaatagtc gttcttacc gggttgact caagcagata gttaccggt aagggcagc  
6061 ggtcggctg aaggggggtc tctgcaac acccagctt gggcgaagc acctaacgc  
6121 aactgagata cctacagcgt gacatgag naagcgcac gctcccga gggagaaag  
6181 cggcaggtg tccgtaagc ggcaggtg gaacagaga cgcagcagc gacttccag  
6241 ggggaacgc ctggtatctt tatagctc ttgggttcc caacctcga cttgagcct  
6301 gattttgtg atgctcaga gggggcagc gccatgaa aagcagcag aagcggcct  
6361 tttacggtt cctggccttt gctggcctt ttgctcact gttcttctc gcttctccc  
6421 ctgattctg ggaatcagc attaccgct ttgagtagc tgaatcctc cgcagcagc  
6481 gaacagcga gcaagcagc tcaagtagc aggaagcga agagcgcga atacgaac  
6541 cgcctccc cgcgctgga ccgattcct aagcagctg gcaagcagc tttcccagc  
6601 ggaagcggg cagtagcgc aagcaatc atacgctac cgttagcag gaaggtttg  
6661 tgaagcga aagagcct cgtcagat ggcctctgc ttatgtgct gctggcagc  
6721 ttatggcgg cgtcctccc gccaccctc gggcctgct tcaaacagc tcaatcagc  
6781 tcccggcga tttgctcag taagagagc gttaccagc aanaacaga taanaagca  
6841 ggcagctct tccagtagc ccttctgct tattgtgct cggcagctc cctactcctg  
6901 cgttaagcct agcagtagc ttttccagc cagcagctt

**THE UNIVERSITY OF WESTERN ONTARIO  
BIOLOGICAL AGENTS REGISTRY FORM**  
Approved Biohazards Subcommittee: April 9, 2010  
Biosafety Website: [www.uwo.ca/humanresources/biosafety/](http://www.uwo.ca/humanresources/biosafety/)

This form must be completed by each Principal Investigator holding a grant administered by the University of Western Ontario (UWO) or in charge of a laboratory/facility where the use of Level 1, 2 or 3 biohazardous agents is described in the laboratory or animal work proposed. The form must also be completed if any work is proposed involving animals carrying zoonotic agents infectious to humans or involving plants, fungi, or insects that require Public Health Agency of Canada (PHAC) or Canadian Food Inspection Agency (CFIA) permits.

This form must be updated at least every 3 years or when there are changes to the biohazards being used.

Containment Levels will be established in accordance with Laboratory Biosafety Guidelines, 3rd edition, 2004, Public Health Agency of Canada (PHAC) or Containment Standards for Veterinary Facilities, 1<sup>st</sup> edition 1996, Canadian Food Inspection Agency (CFIA).

Completed forms are to be returned to Occupational Health and Safety, (OHS), (Support Services Building, Room 4190) for distribution to the Biohazard Subcommittee. For questions regarding this form, please contact the Biosafety Officer at extension 81135 or [biosafety@uwo.ca](mailto:biosafety@uwo.ca). If there are changes to the information on this form (excluding grant title and funding agencies), contact Occupational Health and Safety for a modification form. See website: [www.uwo.ca/humanresources/biosafety/](http://www.uwo.ca/humanresources/biosafety/)

PRINCIPAL INVESTIGATOR	<u>Dr. David Edgell</u>
DEPARTMENT	<u>Biochemistry, Schulich School Med. &amp; Den.</u>
ADDRESS	<u>Room C108, Molecular Biology Laboratory, UWO</u>
PHONE NUMBER	<u>8-3133</u>
EMERGENCY PHONE NUMBER(S)	<u>Kyle Pollard: 8-3093. Edgell home: 510-432-9295</u>
EMAIL	<u>dedgell@uwo.ca</u>

Location of experimental work to be carried out: Building(s) MBL Room(s) C103, 105  
110

\*For work being performed at Institutions affiliated with the University of Western Ontario, the Safety Officer for the Institution where experiments will take place must sign the form prior to its being sent to the University of Western Ontario Biosafety Officer (See Section 12.0, Approvals).

FUNDING AGENCY/AGENCIES: CIHR, NSERC  
GRANT TITLE(S): CIHR: Influences of homing endonucleases on gene structure and function  
NSERC: Evolution of homing endonuclease structure and function

**PLEASE ATTACH A BRIEF DESCRIPTION OF YOUR WORK THAT EXPLAINS THE BIOHAZARDS USED AND HOW THEY WILL BE STORED, USED AND DISPOSED OF. PROJECTS SUBMITTED WITHOUT A SUMMARY WILL NOT BE REVIEWED.**

Names of all personnel working under Principal Investigators supervision in this location:

<u>Nancy Friedrich</u>	<u>Danielle Tegart</u>
<u>Ben Kleinstiver</u>	
<u>Keith Horwood</u>	
<u>Rachel Ma</u>	
<u>Wesley Berube-Janzen</u>	

\* DESCRIPTION MUST BE ATTACHED TO THIS FORM OR PROJECT WILL NOT BE REVIEWED\*

## 1.0 Microorganisms

1.1 Does your work involve the use of biological agents?  YES  NO  
 (non-pathogenic and pathogenic biological agents including but not limited to bacteria and other microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)? If no, please proceed to Section 2.0

Do you use microorganisms that require a permit from the CFIA?  YES  NO

If YES, please give the name of the species. \_\_\_\_\_

What is the origin of the microorganism(s)? \_\_\_\_\_

Please describe the risk (if any) of escape and how this will be mitigated:

---



---

Please attach the CFIA permit.

Please describe any CFIA permit conditions:

---



---

1.2 Please complete the table below:

Name of Biological agent(s)*	Is it known to be a human pathogen? YES/NO	Is it known to be an animal pathogen? YES/NO	Is it known to be a zoonotic agent? YES/NO	Maximum quantity to be cultured at one time? (in Litres)	Source/Supplier	PHAC or CFIA Containment Level
<i>Aeromonas hydrophila C-1</i>	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input checked="" type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	1		<input type="radio"/> 1 <input checked="" type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
<i>Escherichia coli B214</i>	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	<input type="radio"/> Yes <input checked="" type="radio"/> No	6		<input checked="" type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
<i>dHS alpha</i>	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No			<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No	<input type="radio"/> Yes <input type="radio"/> No			<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3

\*Please attach a Material Safety Data Sheet or equivalent from the supplier.

## 2.0 Cell Culture

2.1 Does your work involve the use of cell cultures?  YES  NO

If no, please proceed to Section 3.0

2.2 Please indicate the type of primary cells (i.e. derived from fresh tissue) that will be grown in culture:

Cell Type	Is this cell type used in your work?	Source of Primary Cell Culture Tissue	AUS Protocol Number
Human	<input type="radio"/> Yes <input type="radio"/> No		Not applicable
Rodent	<input type="radio"/> Yes <input type="radio"/> No		
Non-human primate	<input type="radio"/> Yes <input type="radio"/> No		
Other (specify)	<input type="radio"/> Yes <input type="radio"/> No		

\* DESCRIPTION MUST BE ATTACHED TO THIS FORM OR PROJECT WILL NOT BE REVIEWED\*

2.3 Please indicate the type of established cells that will be grown in culture in:

Cell Type	Is this cell type used in your work?	Specific cell line(s)*	Supplier / Source
Human	<input type="radio"/> Yes <input type="radio"/> No		
Rodent	<input type="radio"/> Yes <input type="radio"/> No		
Non-human primate	<input type="radio"/> Yes <input type="radio"/> No		
Other (specify)	<input type="radio"/> Yes <input type="radio"/> No		

\*Please attach a Material Safety Data Sheet or equivalent from the supplier. (For more information, see [www.atcc.org](http://www.atcc.org))

2.4 For above named cell type(s) indicate PHAC or CFIA containment level required  1  2  2+  3

### 3.0 Use of Human Source Materials

3.1 Does your work involve the use of human source materials?  YES  NO  
If no, please proceed to Section 4.0

3.2 Indicate in the table below the Human Source Material to be used.

Human Source Material	Source/Supplier /Company Name	Is Human Source Material Infected With An Infectious Agent? YES/NO	Name of Infectious Agent (If applicable)	PHAC or CFIA Containment Level (Select one)
Human Blood (whole) or other Body Fluid		<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
Human Blood (fraction) or other Body Fluid		<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
Human Organs or Tissues (unpreserved)		<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown		<input type="radio"/> 1 <input type="radio"/> 2 <input type="radio"/> 2+ <input type="radio"/> 3
Human Organs or Tissues (preserved)		Not Applicable		Not Applicable

### 4.0 Genetically Modified Organisms and Cell lines

4.1 Will genetic modifications be made to the microorganisms, biological agents, or cells described in Sections 1.0 and 2.0?  YES  NO If no, please proceed to Section 5.0

4.2 Will genetic modification(s) involving plasmids be done?  YES, complete table below  NO

Bacteria Used for Cloning *	Plasmid(s) *	Source of Plasmid	Gene Transfected	Describe the change that results
E. coli DH5alpha	ColE1-replicon (pUC) pACYC-based vectors	Novagen or lab stocks		cloning of genes for overexpression of proteins

\* Please attach a Material Data Sheet or equivalent if available.

for biochemical and structural studies

\* DESCRIPTION MUST BE ATTACHED TO THIS FORM OR PROJECT WILL NOT BE REVIEWED\*

4.3 Will genetic modification(s) involving viral vectors be made?  YES, complete table below  NO

Virus Used for Vector Construction	Vector(s) *	Source of Vector	Gene(s) Transduced	Describe the change that results

\* Please attach a Material Safety Data Sheet or equivalent.

4.4 Will genetic sequences from the following be involved?

- ◆ HIV  YES, please specify \_\_\_\_\_  NO
- ◆ HTLV 1 or 2 or genes from any Level 1 or Level 2 pathogens  YES, specify \_\_\_\_\_  NO
- ◆ SV 40 Large T antigen  YES  NO
- ◆ E1A oncogene  YES  NO
- ◆ Known oncogenes  YES, please specify \_\_\_\_\_  NO
- ◆ Other human or animal pathogen and or their toxins  YES, please specify \_\_\_\_\_  NO

4.5 Will virus be replication defective?  YES  NO

4.6 Will virus be infectious to humans or animals?  YES  NO

4.7 Will this be expected to increase the containment level required?  YES  NO

### 5.0 Human Gene Therapy Trials

5.1 Will human clinical trials be conducted involving a biological agent?  YES  NO  
 (including but not limited to microorganisms, viruses, prions, parasites or pathogens of plant or animal origin)  
 If no, please proceed to Section 6.0

5.2 If YES, please specify which biological agent will be used: \_\_\_\_\_  
 Please attach a full description of the biological agent.

5.2 Will the biological agent be able to replicate in the host?  YES  NO

5.3 How will the biological agent be administered? \_\_\_\_\_

5.4 Please give the Health Care Facility where the clinical trial will be conducted: \_\_\_\_\_

5.5 Has human ethics approval been obtained?  YES, number: \_\_\_\_\_  NO  PENDING

### 6.0 Animal Experiments

6.1 Will live animals be used?  YES  NO If no, please proceed to section 7.0

6.2 Name of animal species to be used \_\_\_\_\_

6.3 AUS protocol # \_\_\_\_\_

6.4 Will any of the agents listed in section 4.0 be used in live animals  YES, specify: \_\_\_\_\_  NO

6.5 Will the agent(s) be shed by the animal:  YES  NO, please justify:

\_\_\_\_\_  
 \_\_\_\_\_

\* DESCRIPTION MUST BE ATTACHED TO THIS FORM OR PROJECT WILL NOT BE REVIEWED\*

**7.0 Use of Animal species with Zoonotic Hazards**

7.1 Will any animals with zoonotic hazards or their organs, tissues, lavages or other body fluids including blood be used (see list below)?  YES  No If no, please proceed to section 8.0

7.2 Please specify the animal(s) used:

- ◆ Pound source dogs  YES  NO
- ◆ Pound source cats  YES  NO
- ◆ Cattle, sheep or goats  YES  NO
- ◆ Non-human primates  YES, please specify species \_\_\_\_\_  NO
- ◆ Wild caught animals  YES, please specify species & colony # \_\_\_\_\_  NO
- ◆ Birds  YES  NO
- ◆ Others (wild or domestic)  YES, please specify \_\_\_\_\_  NO

**8.0 Biological Toxins**

8.1 Will toxins of biological origin be used?  YES  NO If no, please proceed to Section 9.0

8.2 If YES, please name the toxin(s) \_\_\_\_\_  
Please attach information, such as a Material Safety Data Sheet, for the toxin(s) used.

8.3 What is the LD<sub>50</sub> (specify species) of the toxin \_\_\_\_\_

8.4 How much of the toxin is handled at one time\*? \_\_\_\_\_

8.5 How much of the toxin is stored\*? \_\_\_\_\_

8.6 Will any biological toxins be used in live animals?  YES, Please provide details: \_\_\_\_\_  NO

\*For information on biosecurity requirements, please see:  
[http://www.uwo.ca/humanresources/docandform/docs/healthandsafety/biosafety/Biosecurity\\_Requirements.pdf](http://www.uwo.ca/humanresources/docandform/docs/healthandsafety/biosafety/Biosecurity_Requirements.pdf)

**9.0 Insects**

9.1 Do you use insects?  YES  NO If no, please proceed to Section 10.0

9.2 If YES, please give the name of the species, \_\_\_\_\_

9.3 What is the origin of the insect? \_\_\_\_\_

9.4 What is the life stage of the insect? \_\_\_\_\_

9.5 What is your intention?  Initiate and maintain colony, give location: \_\_\_\_\_  
 "One-time" use, give location: \_\_\_\_\_

9.6 Please describe the risk (if any) of escape and how this will be mitigated:  
\_\_\_\_\_  
\_\_\_\_\_

9.7 Do you use insects that require a permit from the CFIA permit?  YES  NO  
If YES, Please attach the CFIA permit & describe any CFIA permit conditions:  
\_\_\_\_\_  
\_\_\_\_\_

**10.0 Plants**

10.1 Do you use plants?  YES  NO If no, please proceed to Section 11.0

10.2 If YES, please give the name of the species. \_\_\_\_\_

10.3 What is the origin of the plant? \_\_\_\_\_

10.4 What is the form of the plant (seed, seedling, plant, tree...)? \_\_\_\_\_

10.5 What is your intention?  Grow and maintain a crop  "One-time" use

10.6 Do you do any modifications to the plant?  YES  NO  
If yes, please describe: \_\_\_\_\_  
\_\_\_\_\_

10.7 Please describe the risk (if any) of loss of the material from the lab and how this will be mitigated:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

10.8 Is the CFIA permit attached?  YES  NO  
If YES, Please attach the CFIA permit & describe any CFIA permit conditions:

\_\_\_\_\_  
\_\_\_\_\_

**11.0 Import Requirements**

11.1 Will any of the above agents be imported?  YES, please give country of origin \_\_\_\_\_  NO  
If no, please proceed to Section 12.0

11.2 Has an Import Permit been obtained from HC for human pathogens?  YES  NO

11.3 Has an import permit been obtained from CFIA for animal or plant pathogens?  YES  NO

11.4 Has the import permit been sent to OHS?  YES, please provide permit # \_\_\_\_\_  NO

**12.0 Training Requirements for Personnel Named on Form**

All personnel named on the above form who will be using any of the above named agents are required to attend the following training courses given by OHS:

- ◆ Biosafety
- ◆ Laboratory and Environmental/Waste Management Safety
- ◆ WHMIS (Western or equivalent)
- ◆ Employee Health and Safety Orientation

As the Principal Investigator, I have ensured that all of the personnel named on the form who will be using any of the biohazardous agents in Sections 1.0 to 9.0 have been trained.

SIGNATURE David S. G. C.

**\* DESCRIPTION MUST BE ATTACHED TO THIS FORM OR PROJECT WILL NOT BE REVIEWED\***

**13.0 Containment Levels**

13.1 For the work described in sections 1.0 to 9.0, please indicate the highest HC or CFIA Containment Level required.  1  2  2+  3

13.2 Has the facility been certified by OHS for this level of containment?  
 YES, permit # if on-campus BIO-UWO-0109  
 NO, please certify  
 NOT REQUIRED for Level 1 containment

**14.0 Procedures to be Followed**

14.1 As the Principal Investigator, I will ensure that this project will follow the Western Biosafety Guidelines and Procedures Manual for Containment Level 1 & 2 Laboratories (and the Level 3 Facilities Manual for Level 3 projects). I will ensure that UWO faculty, staff and students working in my laboratory have an up-to-date Hazard Communication Form, found at <http://www.wph.uwo.ca/>

SIGNATURE *Dave G...* Date: *July 13<sup>th</sup> / 2010*

14.2 Please describe additional risk reduction measures will be taken beyond containment level 1, 2, 2+ or 3 measures, that are unique to this agent.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

14.3 Please outline what will be done if there is an exposure to the biohazards listed, such as a needlestick injury:

\_\_\_\_\_  
\_\_\_\_\_

*See attached*

**15.0 Approvals**

1) UWO Biohazard Subcommittee: SIGNATURE: *Susan Koval*  
Date: *August 13, 2010*

2) Safety Officer for the University of Western Ontario  
SIGNATURE: *J Stanley*  
Date: *Aug 13, 2010*

3) Safety Officer for Institution where experiments will take place (if not UWO):  
SIGNATURE: \_\_\_\_\_  
Date: \_\_\_\_\_

Approval Number: *BIO-UWO-0109* Expiry Date (3 years from Approval): *Aug 12 2013*

Special Conditions of Approval:

## Edgell lab research - potential biohazards

The majority of research in the Edgell lab (>95%) uses standard non-pathogenic *Escherichia coli* strains for cloning, overexpression, and purification of proteins for biochemical and structural studies. We routinely grow between 1 - 6 L of *E. coli* cultures for protein overexpression in large, temperature controlled incubators. Harvesting of cultures is performed in centrifuge bottles with O-ring seals. A biological spill kit is located beside each incubator on the first floor of MBL, outside of room C105.

Very little research (<5%) involves *Aeromonas hydrophila* C-1 (obtained from the Félix d'Hérelle Reference Centre for Bacterial Viruses at Laval University), which requires level 2 containment. We maintain a permanent laboratory stock of *A. hydrophila* in our -80°C freezer located on the first floor of MBL. Manipulations of *A. hydrophila* cultures are performed in a laminar flowhood that is certified on a yearly basis. The largest culture volume of *A. hydrophila* is 1 L, which is grow at 30°C in a closed incubator. Harvesting of cultures by centrifugation is performed in bottles with O-ring seals to prevent aerosol formation. A biological spill kit is located next to the incubator. All *A. hydrophila* biological waste is autoclaved before disposal.

**Question 14.2:** Risk reduction measures to be taken include: working with *Aeromonas* cultures in the laminar flow hood, centrifuging *Aeromonas* cultures in tubes with O-ring seals, autoclaving of all biological waste involving *Aeromonas*. Less than 5% of work in our laboratory involves *Aeromonas*, thus the risk is minimal.

**Question 14.3:** Exposure to biological agent, such as needlestick: disinfect area with alcohol swabs, seek medical attention if necessary, fill out incident report form and inform Kyle Pollard (Operations Manager for Biochemistry Department), report incident to Occupational Health and Safety.



## MATERIAL SAFETY DATA SHEET (MSDS)

Telephone: (978) 927-5054  
Toll free: (800) 632-5227  
Fax: (978) 921-1350  
Email: info@neb.com  
Revision Date: 5/10

NEB #C2527

### SECTION 1--CHEMICAL INFORMATION

Product Name: BL21(DE3) Competent *E. coli* Cas.# None

### SECTION 2--COMPOSITION/INFORMATION ON INGREDIENT

- |                       |       |               |
|-----------------------|-------|---------------|
| 1. Glycerol           | 1-10% | Cas.# 56-81-5 |
| 2. Dimethyl Sulfoxide | 1-10% | Cas.# 67-68-5 |

The ingredients listed in this section include only those items that have more than 1% of a component classified as hazardous and 0.1% of a component classified as carcinogenic. If you have any questions, please contact info@neb.com.

### SECTION 3--HAZARDOUS IDENTIFICATION

**Emergency Overview:** May cause irritation to skin, eyes, and respiratory tract, may affect kidneys, blood and liver.

**HMS and NFPA Ratings:** 0 – Minimal or None, 1 – Slight, 2 – Moderate, 3 – Serious, and 4 – Severe

Health: 1  
Flammability: 1  
Reactivity: 1

### SECTION 4--FIRST AID MEASURES

**Eyes:** Flush eyes with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating eyelids. Call a physician.

**Skin:** Wash skin with soap and copious amount of water.

**Ingestion:** If the person is conscious, wash out mouth with water. Call a physician.

**Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

### SECTION 5--FIRE FIGHTING MEASURES

**Extinguishing Media:** Water spray, Carbon dioxide, dry chemical powder or appropriate foam.

**Special Fire Fighting Procedures:** Wear self contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

**Fire and Explosion Hazards:** Combustible liquid. Emits toxic fumes under fire conditions.

### SECTION 6--ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Avoid breathing or contact with vapors, mist of gas.

**Procedure of Personal Precaution:** Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves and chemical safety goggles. Use non-sparking tools and equipment. Ventilate and evacuate area of leak or spill.

**Environmental Precautions:** Do not let product enter drains.

**Methods For Cleaning Up:** Cover with dry lime, sand, or soda ash. Sweep up and shovel. Place in covered container for disposal.

### SECTION 7--HANDLING AND STORAGE

**Handling:** Provide appropriate exhaust ventilation.

**User Exposure:** Avoid inhalation. Avoid contact with DMSO solutions containing toxic materials or material with unknown toxicological properties. Dimethyl sulfoxide is readily absorbed through skin and may carry such materials into the body. Avoid prolonged or repeated exposure.

**Route of Exposure**

**Skin Absorption:** May be harmful if absorbed.

**Contact:** May cause skin irritation.

**Eye Contact:** May cause eye irritation.

**Inhalation:** May be harmful if inhaled. Material may be irritating to mucous membranes and upper respiratory tract.

**Ingestion:** May be harmful if swallowed.

**Conditions Aggravated By Exposure:** Avoid contact with DMSO solutions containing toxic materials or material with unknown toxicological properties. Dimethyl sulfoxide is readily absorbed through skin and may carry such materials into the body. Avoid prolonged or repeated exposure.

**Target Organ (s) or System (s):** Eyes and Skin

**Toxicity Data**

**Inhalation**

Rat  
40,250 ppm  
LC50

**Oral**

Rat  
3,300 mg/kg  
LD50

**Oral**

Rat  
14,500 mg/kg  
LD50

Remarks: Sense Organs and Special Senses (Nose, Eye, Ear and Taste): Eye: Hemorrhage. Sense Organs and Special Senses (Nose, Eye, Ear and Taste): Eye: Conjunctive irritation.

**Skin**

Rat  
40,000 mg/kg  
LD50

**Intraperitoneal**

Rat  
8,200 mg/kg  
LD50

**Subcutaneous**

Rat  
12 g/kg  
LD50

Remarks: Behavioral: Change in motor activity (specific assay), Lungs, Thorax, or Respiration: Dyspnea.

**Intravenous**

Rat  
5,360 mg /kg  
LD50

Remarks: Behavioral: Tremor, Muscle weakness. Lungs, Thorax or Respiration: Dyspnea.

**Chronic Exposure - Carcinogen**

Species: Rat  
Route of Application: Oral  
Dose: 59 gm/kg  
Exposure Time: 81W  
Frequency: I  
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria, Skin and Appendages: Other: Tumors.

Species: Rat  
Route of Application: Subcutaneous  
Dose: 220 gm/kg  
Exposure Time: 82W  
Frequency I  
Result: Tumorigenic: Equivocal tumorigenic agent by RTECS criteria, Skin and Appendages: Other: Tumors.

**Chronic Exposure - Mutagen**

Species: Rat  
Route: Intraperitoneal  
Dose: 25 gm/kg  
Exposure Time: 5D  
Mutation Test: Cytogenetic analysis.

**Chronic Exposure - Reproductive Hazard**

Species: Rat  
Dose: 56 gm/kg  
Route of Application: Intraperitoneal  
Exposure Time: (6-12D PREG)  
Result: Effects on Fertility: Abortion

Species: Rat  
Dose: 6,600 mg/kg  
Route of Application: Intraperitoneal  
Exposure Time: (7-15D PREG)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Species : Rat  
Dose: 30,750 mg/kg  
Route of Application: Subcutaneous  
Exposure Time: (8-10D PREG)  
Result: Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants). Effects on Fertility: Litter size (e.g., # fetuses per litter; measured before birth).

Order Number

Customer Number

## 1. Product and Company Identification

<b>Supplier</b> Manufactured by EMD Biosciences, Inc. 441 Charmany Drive Madison, WI 53719 (608)238-6110 (800)207-0144 FAX: (608)238-1388  P.O. Box 12087 La Jolla, CA 92039-2087 (858)450-5558 (800)854-3417 FAX: (858)453-3552	<b>Catalog #</b> 71317  <b>In Case of Emergency</b> Call Chemtrec <sup>®</sup> (800)424-9300 (within U.S.A.) (703)527-3887 (outside U.S.A.)
--	---

 Product name NovaXGF<sup>+</sup> Zappers<sup>™</sup> Electrocompetent Cells

## 2. Composition and Information on Ingredients

<u>Ingredient Name</u>	<u>CAS No.</u>	<u>Product No.</u>	<u>EU Symbol</u>	<u>R-Phrases</u>
Test Plasmid		RC0674	-	-
NovaXGF <sup>+</sup> Zappers <sup>™</sup> Electrocompetent Cells		RC0676	-	-

Note: See section 8 for occupational exposure limits and section 11 for LC50/LD50 information.

## 3. Hazards Identification

<b>Primary Hazards and Critical Effects</b>	: RC0674, RC0676	No specific hazard.
<b>Physical/Chemical hazards</b>	:	Not applicable.
<b>Human Health Hazards</b>	:	Not applicable.
<b>Environmental Hazards</b>	:	Not applicable.

## 4. First Aid Measures

<b>Inhalation</b>	: RC0674, RC0676	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
<b>Ingestion</b>	: RC0674, RC0676	Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately.
<b>Skin Contact</b>	: RC0674, RC0676	In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.
<b>Eye Contact</b>	: RC0674, RC0676	In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.
<b>Notes to Medical Doctor</b>	:	Not available.

## 5. Fire-Fighting Measures

<b>Extinguishing Media</b>	: Use foam or all purpose dry chemicals to extinguish.
<b>Fire-Fighting Procedures</b>	: Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.
<b>Fire/Explosion Hazards</b>	: Not applicable.
<b>Hazardous Decomposition Products</b>	: Not available.

## 11. Toxicological Information

### Toxicity Data

<u>Ingredient Name</u>	<u>Test</u>	<u>Result</u>	<u>Route</u>	<u>Species</u>
RC0674	Not available.	Not available.	Not available.	Not available.
RC0676	Not available.	Not available.	Not available.	Not available.

Routes of Entry : Not available.

### Acute Effects

Inhalation	:	Not available.
Ingestion	:	Not available.
Skin Contact	:	Not available.
Eye Contact	:	Not available.

### Chronic Effects

Adverse Effects	:	Not available.
Target Organs	:	Not available.
Carcinogenic Effects	:	Not available.
Mutagenic Effects	:	Not available.
Developmental and Teratogenic Effects	:	Not available.
Reproductive Effects	:	Not available.

Other Information : RC0674, RC0676 Repeated or prolonged exposure is not known to aggravate medical condition.

## 12. Ecological Information

### Ecotoxicity Data

<u>Ingredient Name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
RC0674	Not available.	Not available.	Not available.
RC0676	Not available.	Not available.	Not available.

## 13. Disposal Consideration

Waste Handling and Disposal : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## 14. Transport Information

### Air

IATA-DGR Class : Not controlled under IATA.

### Packing Group

## 15. Regulatory Information

### EU Regulations

Hazard Symbol(s)	:	-
Risk Phrases	:	This product is not classified according to the EU regulations.
Safety Phrases	:	Not applicable.

### US Regulations

Haz-Com Standard	:	Not controlled under the HCS (United States).
EPA	:	Not available.
State	:	Not available.

### Canadian Regulations

WHMIS	:	Not controlled under WHMIS (Canada).
CEPA	:	No products were found.
Provincial	:	No products were found.

**Order Number**
**Customer Number**

## 1. Product and Company Identification

<b>Supplier</b> Manufactured by EMD Biosciences, Inc. 441 Charmany Drive Madison, WI 53719 (608)238-6110 (800)207-0144 FAX: (608)238-1388  P.O. Box 12087 La Jolla, CA 92039-2087 (858)450-5558 (800)854-3417 FAX: (858)453-3552	<b>Catalog #</b> 69749  <b>In Case of Emergency</b> Call Chemtrac® (800)424-9300 (within U.S.A.) (703)527-3887 (outside U.S.A.)
--	---

**Product name**            pET-24a(+) DNA

## 2. Composition and Information on Ingredients

<u>Ingredient Name</u>	<u>CAS No.</u>	<u>Product No.</u>	<u>EU Symbol</u>	<u>R-Phrases</u>
Induction Control E		RC0039	-	-
pET-24a(+) DNA		RC0277	-	-

**Note: See section 8 for occupational exposure limits and section 11 for LC50/LD50 information.**

## 3. Hazards Identification

**Primary Hazards and Critical Effects**            :    RC0039, RC0277    No specific hazard.

**Physical/Chemical hazards**            :                            Not applicable.

**Human Health Hazards**                :                            Not applicable.

**Environmental Hazards**                :                            Not applicable.

## 4. First Aid Measures

<b>Inhalation</b>  <b>Ingestion</b>  <b>Skin Contact</b>  <b>Eye Contact</b>  <b>Notes to Medical Doctor</b>	:    RC0039, RC0277 :    RC0039, RC0277 :    RC0039, RC0277 :    RC0039, RC0277 :	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention. Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention. Not available.
--	---	---

## 5. Fire-Fighting Measures

<b>Extinguishing Media</b> <b>Fire-Fighting Procedures</b> <b>Fire/Explosion Hazards</b> <b>Hazardous Decomposition Products</b>	:    Use foam or all purpose dry chemicals to extinguish. :    Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear. :    Not applicable. :    Not available.
---	---

Skin Contact : Not available.  
 Eye Contact : Not available.

**Chronic Effects**

Adverse Effects : Not available.  
 Target Organs : Not available.  
 Carcinogenic Effects : Not available.  
 Mutagenic Effects : Not available.  
 Developmental and Teratogenic Effects : Not available.  
 Reproductive Effects : Not available.

Other Information : RC0039, RC0277 Repeated or prolonged exposure is not known to aggravate medical condition.

**12. Ecological Information****Ecotoxicity Data**

<u>Ingredient Name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
RC0039	Not available.	Not available.	Not available.
RC0277	Not available.	Not available.	Not available.

**13. Disposal Consideration**

Waste Handling and Disposal : Waste must be disposed of in accordance with federal, state and local environmental control regulations.

**14. Transport Information****Air**

IATA-DGR Class : Not controlled under IATA.

**Packing Group****15. Regulatory Information****EU Regulations**

Hazard Symbol(s) : -  
 Risk Phrases : This product is not classified according to the EU regulations.  
 Safety Phrases : Not applicable.

**US Regulations**

Haz-Com Standard : Not controlled under the HCS (United States).  
 EPA : Not available.  
 State : Not available.

**Canadian Regulations**

WHMIS : Not controlled under WHMIS (Canada).  
 CEPA : No products were found.  
 Provincial : No products were found.

**16. Other Information**

Validated by map on 9/24/2003.

Version : 1.0  
 Date of Printing : 9/25/2003.  
 Notice to Reader

*To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. \*\*This product is intended for research use only.\*\**

Order Number

Customer Number

### Identification of the substance/preparation and of the company/undertaking

Product name : pACYCDuet<sup>™</sup>-1 DNA

Catalog # 71147

Supplier : Manufactured by EMD Biosciences, Inc.  
 441 Charmany Drive  
 Madison, WI 53719  
 (608)238-6110  
 (800)207-0144  
 FAX: (608)238-1388

Synonym Not available.

P.O. Box 12087  
 La Jolla, CA 92039-2087  
 (858)450-5558  
 (800)854-3417  
 FAX: (858)453-3552

Emergency telephone number : Call Chemtrec<sup>®</sup>  
 (800)424-9300 (within U.S.A.)  
 (703)527-3887 (outside U.S.A.)

### Composition / information on ingredients

Substance/Preparation : Substance

Chemical name*	CAS No.	EC Number	Symbol	R-Phrases
CYCDuet <sup>™</sup> -1 DNA		Not available.	-	-

### Hazards identification

Physical/chemical hazards : Not applicable.  
 Human health hazards : No specific hazard.

### First-aid measures

#### First-Aid measures

**Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

**Ingestion** : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

**Skin Contact** : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

**Eye Contact** : Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

**Aggravating conditions** : Repeated or prolonged exposure is not known to aggravate medical condition.

### Fire-fighting measures

Flammability of the Product : May be combustible at high temperature.

#### Extinguishing Media

Extinguishable : SMALL FIRE: Use DRY chemical powder.  
 LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

Special fire-fighting procedures : Fire fighters should wear positive pressure self-contained breathing apparatus (SCBA) and full turnout gear.

Protection of fire-fighters : Be sure to use an approved/certified respirator or equivalent.

Reproduction toxicity : Not available.  
Teratogenic effects : Not available.

## 2. Ecological information

Toxicity : Not available.  
Stability of the Products of Degradation : Not available.

## 3. Disposal considerations

Methods of disposal; Waste of residues: : Waste must be disposed of in accordance with federal, state and local environmental control regulations.  
Contaminated packaging

## 4. Transport information

### International transport regulations

#### ADR - Road/Railway

ADR/RID Class : Not controlled under ADR (Europe).

IMDG Class : Not controlled under IMDG.

IATA-DGR Class : Not controlled under IATA.

Special Provisions for transport : Not applicable.

## 5. Regulatory information

### Regulations

Risk Phrases : This product is not classified according to the EU regulations.

### Federal Regulations

TSCA: No products were found.  
SARA 302/304/311/312 extremely hazardous substances: No products were found.  
SARA 302/304 emergency planning and notification: No products were found.  
SARA 302/304/311/312 hazardous chemicals: No products were found.  
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: No products were found.  
SARA 313 toxic chemical notification and release reporting: No products were found.  
Clean Water Act (CWA) 307: No products were found.  
Clean Water Act (CWA) 311: No products were found.  
Clean air act (CAA) 112 accidental release prevention: No products were found.  
Clean air act (CAA) 112 regulated flammable substances: No products were found.  
Clean air act (CAA) 112 regulated toxic substances: No products were found.

US Classification : Not controlled under the HCS (United States).

State Regulations :

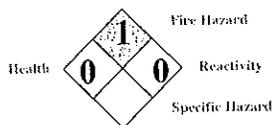
MIS (Canada) : Not controlled under WHMIS (Canada).  
No products were found.

## 6. Other information

Hazardous Material  
Information System  
(U.S.A.)

	0
Flammability	1
Reactivity	0
Personal Protection	A

National Fire  
Protection Association  
(U.S.A.)



### Warning to Reader

to the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.  
The determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. \*\*This product is intended for research only.\*\*

Public Health  
Agency of CanadaAgence de la santé  
publique du Canada

Canada

Home > Emergency Preparedness > Laboratory Security > Material Safety Data Sheets (MSDS) -  
Infectious Substances > Aeromonas hydrophila - Material Safety Data Sheets (MSDS)

## Aeromonas hydrophila - Material Safety Data Sheets (MSDS)

### MATERIAL SAFETY DATA SHEET - INFECTIOUS SUBSTANCES

#### SECTION I - INFECTIOUS AGENT

**NAME:** *Aeromonas hydrophila*

**SYNONYM OR CROSS REFERENCE:** Aeromonads

**CHARACTERISTICS:** Gram negative small rods, polar flagella, facultatively anaerobic, exotoxins

#### SECTION II - HEALTH HAZARD

**PATHOGENICITY:** Associated with gastroenteritis, wound infections (cellulitis), septicemia, ocular and respiratory tract infections, pneumonia and urinary tract infections; frequent pathogens for cold-blooded marine and freshwater amphibians and reptiles (red leg disease in frogs); also in birds

**EPIDEMIOLOGY:** Worldwide; especially near freshwater sources; incidence of serious human disease is increasing and many isolates are probably misdiagnosed as coliforms

**HOST RANGE:** Humans, amphibians, fish, reptiles, birds

**INFECTIOUS DOSE:** Unknown

**MODE OF TRANSMISSION:** Fecal-oral transmission; contact with contaminated water, food, soil, faeces; ingestion of contaminated fish or reptiles

**INCUBATION PERIOD:** Not clearly identified

**COMMUNICABILITY:** Not usually transmitted from person to person

#### SECTION III - DISSEMINATION

**RESERVOIR:** Salt and freshwater, soil, sewage

**ZOONOSIS:** None

**VECTORS:** None

#### SECTION IV - VIABILITY

**DRUG SUSCEPTIBILITY:** Susceptible to expanded- and broad-spectrum cephalosporins, aminoglycosides, carbapenems, chloramphenicol, tetracycline, trimethoprim-sulfamethoxazole and the quinolones

**DRUG RESISTANCE:** Resistant to penicillin, ampicillin, carbenicillin and ticarcillin

**SUSCEPTIBILITY TO DISINFECTANTS:** Susceptible to many disinfectants - 1% sodium hypochlorite, 70% ethanol, 2% glutaraldehyde, iodines, phenolics, formaldehyde

**PHYSICAL INACTIVATION:** Sensitive to moist heat (121°C for at least 15 min) and dry heat (160-170°C for at least 1 hour)

**SURVIVAL OUTSIDE HOST:** Survives well in natural water sources and soil

## SECTION V - MEDICAL

**SURVEILLANCE:** Monitor for symptoms

**FIRST AID/TREATMENT:** Fluid replacement and antibiotic therapy as indicated

**IMMUNIZATION:** None

**PROPHYLAXIS:** Not usually administered

## SECTION VI - LABORATORY HAZARDS

**LABORATORY-ACQUIRED INFECTIONS:** None reported to date

**SOURCES/SPECIMENS:** Faeces, urine, blood, sputum, bile

**PRIMARY HAZARDS:** Ingestion, accidental parenteral inoculation, direct contact of mucous membranes

**SPECIAL HAZARDS:** Naturally or experimentally infected cold-blooded animals

## SECTION VII - RECOMMENDED PRECAUTIONS

**CONTAINMENT REQUIREMENTS:** Biosafety level 2 practices, containment equipment and facilities for all activities involving known or potentially infectious clinical materials and cultures

**PROTECTIVE CLOTHING:** Laboratory coat; gloves when direct contact with infectious materials is unavoidable

**OTHER PRECAUTIONS:** Good personal hygiene and frequent handwashing

## SECTION VIII - HANDLING INFORMATION

**SPILLS:** Allow aerosols to settle; wearing protective clothing, gently cover spill with absorbent paper and apply 1% sodium hypochlorite, starting at the perimeter and working towards the centre; allow sufficient contact time (30 min) before clean up

**DISPOSAL:** Decontaminate before disposal; steam sterilization, chemical disinfection, incineration

**STORAGE:** In sealed containers

## SECTION IX - MISCELLANEOUS INFORMATION

**Date prepared:** November 1999

**Prepared by:** Office of Laboratory Security, PHAC

Although the information, opinions and recommendations contained in this Material Safety Data Sheet are compiled from sources believed to be reliable, we accept no responsibility for the accuracy, sufficiency, or reliability or for any loss or injury resulting from the use of the information. Newly discovered hazards are frequent and this information may not be completely up to date.

Copyright ©  
Health Canada, 2001

Date Modified: 2001-01-23